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SUBSTITUTION OF A STANDARD OF SUPERFICIAL AREA FOR ONE OF CUBIC CAPACITY IN SMALL HOUSES.*

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The growth of sanitary law up to a certain point keeps pace with the growth of a community. We feel that while instinct may suffice for the individual, law is necessary as a social institution; and we willingly assent to such an amount of control, and such relinquishment of our individual freedom as the wellbeing of the community as a whole demands. But beyond a certain point the growth of sanitary law is not so much dependent on the growth of a community as on the growth of sanitary science; and sanitary science, or rather those who profess to be guided by it, seem to be developing a tendency to make on its behalf demands on the discretion of individuals which are not generally recognized as necessary. It would be easy to show that within the limit of justifiable interference sanitary law in no way conflicts with economic conditions. So long as we are content to compel the individual to do only what is universally recognized to be requisite for the wellbeing of the community, of which he forms a unit, we are on safe ground, and economic conditions will adjust themselves to the inevitable circumstances; but the moment we go beyond this, and compel individuals or sections of the community to do what we think, or even know, to be advantageous for other individuals or other sections of the community, or for themselves, we get entangled in complex economical difficulties which cannot possibly be ignored with impunity. For loss must occur where exaction is not balanced by compensation, and social-economic necessarily react on sanitary conditions.

For example, if a man earns 4d. an hour, and by working 10 hours a day makes 20s. a week, and you, with the best intentions, prohibit him from working more than 8 hours per day, your injudicious interference with his liberty will not affect his pocket merely, but also his health, and the health of those dependent on

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him; for you at once reduce his income from 20s. to 16s. a week. If in addition to this you compel him to live in a house of such size, and fitted with such sanitary appliances that he cannot possibly get it without paying an additional 1s. a week of rent, you practically deprive the man of one-fourth of his total income, and to that serious extent reduce his ability to provide proper food and clothing for himself and his family. There is a popular delusion that legislation, which must bring about such results as these, is good for the working classes; but I have no hesitation in saying that that is an absolutely false idea. No legislation which disregards economic consequences can possibly be beneficial to the working classes, or conducive to the wellbeing of a community as a whole.

It is evident, then, that in all sanitary legislation we are bound to take this into account, and so to regulate our demands upon the common fund of individual right that we shall interfere as little as possible with the ordinary course of things, and with the freedom and responsibilities of individuals. Hence, in the matter with which we have now more particularly to deal—the securing of a certain amount of space for each occupant of a dwelling—we have to consider, first, what is the smallest amount of space which experience has proved to be sufficient under favourable conditions; and, second, how is that minimum of space to be secured for all members of the community with the smallest amount of interference with the interests of individuals. There are many sanitary reformers who aim at obtaining compulsorily what is desirable, rather than what is necessary, and I must say that I have no sympathy whatever with them. The desirable must be obtained by other means. Practically, the minimum will be largely exceeded, and the supply of the desirable will, without compulsion, follow the demand, without the drawbrack of economic disturbance; and therefore, in this matter of space, in fixing a compulsory minimum either by one standard or another, we must, as I have said, be content with the *smallest* amount which will serve our purpose. In the present instance it is exceedingly difficult to arrive at this amount, but as Parliament has within the last week determined that it should be 400 cubic feet, we may take that as an approximation to the space required in houses of the usual construction in Scotland. Assuming it to be so, then—although personally I don't admit it—we have next to consider the question, How is this to be secured on the most favourable terms? If there are several ways of doing it, and one is more favourable both to the owners and to the occupiers of houses than the others, we are bound to adopt that way, bearing in mind that preventible economic disturbance will always be most unfavourable to the very class we seek to benefit. I insist upon this the more because in much of our recent sanitary legislation it has not been sufficiently taken into account. There is a

growing tendency to ignore such considerations, and I avail myself of the opportunity of addressing such an influential body as this to direct special attention to their importance.

Hitherto there has been only one way of securing space for the occupants of houses—namely, by prescribing a certain number of cubic feet for each; and I desire to suggest another, which I hope to show you is in many respects preferable—namely, to prescribe a certain number of superficial feet of floor area.

The object of such specific rules, of course, is to prevent overcrowding, probably the worst of sanitary evils—an evil which is not by any means confined to our large cities, but one which our county councils must soon deal with as well as our civic authorities. It is not seriously contended by any one that 300 or even 500 cubic feet is enough for an adult, for say the working man's eight hours' sleep. Yet cases have been recorded in Glasgow where each adult had only 86 cubic feet. Now, it is evident that, whether 400 feet be a sufficient quantity or not, a house of 1,200 cubic feet capacity is much more likely to be a healthy dwelling if inhabited by only 3 adults, than if it is inhabited by 14; and the object of *a* standard is simply to give local authorities a ready means of effecting such a change. Overcrowding, in fact, must be dealt with summarily, by some rule of easy application. It is a nuisance which most directly affects the wellbeing of those who create it; but its evil effects are not confined to them. It must therefore be put down as a social offence; and this legal definition of space is merely an instrument to this end, perfectly serviceable if judiciously used; but inasmuch as the limitation is quite empirical, it is not judicious to apply the rule rigidly in all cases without regard to circumstances. It is reasonable that, in either case, as we have no exact scientific basis for our rule, we should allow it a little elasticity, and that we should adopt the rule which, even if rigidly enforced, would allow the greatest amount of freedom. Now, the chief merit of the rule I have suggested, as distinguished from the existing rule, is that it allows more freedom of action to those who have to turn expensives sites to account in providing dwellings for the poor. To that extent it is more beneficial to the poor on economic grounds, the importance of which I have already insisted upon. It would also give us more freedom in dealing with existing property—another gain to the poor in the same direction. Some people seem to think that you may, by harassing legislation, diminish the existing supply of houses, and hinder any prudent man from building new ones, without grievous injury to the poor themselves. If such persons are not guilty of such folly their conduct belies them, and is incomprehensible. You cannot, by these or by any other justifiable means, get for the poor more than they are able to pay for; and I was glad to hear that the Lord Provost of Perth, at all events, is not one of those foolish civic persons who seem to think

you can. Now, within moderate limits, you can give the poor superficial area easier than cubic capacity; you therefore, by following this course, make it easier to get a supply of houses for them; which means that rents will be easier even when sufficient inducement remains for builders to invest money in such property.

But the sanitary results would be even more important than the economic. You will at once see that, so far as the administration of the law is concerned, the change of standard would make no difference. It would be as easy for sanitary officials to apply the one as the other. The area would be a shade more easily got at than the capacity. The system of ticketing would remain as at present, and there would be no difficulty in dealing with the better class of workmen's house, as it will probably be necessary to do, in Glasgow at least, when their new Police Act comes into operation. The sanitary official's position, then, would remain unaffected.

Now, let me refer to the position of the occupants of houses affected by the rule:—(1) Their houses would be cheaper; (2) They would be larger and more comfortable; and (3) They would be more easily ventilated. These things, you observe, have all a direct bearing on health; they constitute, in fact, the most important factors in domestic sanitation—that is, so far as sanitation is dependent on the structure of the house—which is the only thing we are dealing with at present. Taking these things in the order stated, I must first go a little more exactly into the question of expense.

1. *Cheapness.* For the purpose of illustration and comparison, I shall take a tenement having on each floor three houses of one apartment and one of two apartments. If the single apartments are to accommodate 3 adults with 400 cubic feet each, they would require to be 10 feet high and to measure 12 feet by 10 feet, and the frontage of the tenement would be 35 feet and the depth 32 feet, and the site will extend to, say, 240 yards. Taking this as it stands, it is evident that if we are content with an area of 40 superficial feet per adult these houses would pass for 3 occupants either by the one standard or the other. But the difference is, that whereas by the new Glasgow standard of 400 cubic feet the tenement *must* have 10 feet ceilings, by the other the ceilings *might* be less. Suppose they were only 8 feet high the rooms would still have the cubic capacity which—up till last week—was generally considered enough as a minimum, namely, 300 feet. Now, I need hardly point out that if you reduced the ceilings to 8 feet, and so took 8 feet off the total height of the tenement, you would considerably reduce its cost. But if, instead of reducing the cost in that way, you prefer to keep the building the same height as the other, you could still more reduce the cost per house by gaining an additional storey; and you would at the same time thus be able to accommodate a larger population on the same

area. The height of ceiling suggested—8 feet—is quite sufficient for all practical purposes. Even in the excellent dwellings of the Peabody Trust no higher ceilings are allowed except sometimes on the street floor. But I am not so sure that the area of 40 feet is sufficient; what attention I have been able to give the subject leads me to the conclusion that we might venture to fix the minimum at 45 feet per adult. I think we may venture to go this length without throwing any additional burden upon the poor householder, and *that* we must regard as "the length of our tether." Of course, if we increase the area we require more ground; but generally, though not always, there need be no increase of frontage. For example, taking this same tenement erected on 240 yards of ground, the building would cover about 124 yards if made to the standard of 400 cubic feet; and 136 yards if made to the standard of 45 feet superficial, leaving sufficient free space behind. In most cases no increase of the site would be necessary, but in the calculations I have made I assume that it is required, and the following is the result:—The cost of the four storey tenement would be about £1,200, including ground at £1 per yard, and the cost of the five storey tenement would be about £1,300, including other 12 yards of ground at £1. Taking the rents at a low figure, say £5, 10s. for the single apartments, and £7, 10s. for the two-room houses, the rental of the four-storey tenement would be £96, or a gross return of 8 per cent; while the rental of the five-storey tenement would be £120, or a gross return of $9\frac{1}{4}$ per cent; so that if you chose to give the tenants the benefit of the saving, you could let them have the very superior houses in the five-storey tenement at 16s. *less* than the others, and yet have as good a return for your money. These houses would be slightly under the 400 cubic limit—but considerably over the 300 limit—their cubic capacity being 360. But, as I intend to show, they would be larger and better than those made to the full 400 standard. Before passing from the cost, however, I must point out how greatly the change I advocate would facilitate that perfectly legitimate form of quasi-philanthropic work which aims at providing the best possible accommodation at the cheapest rate consistent with commercial solvency. It is obvious that if the lowest limit you can come to is a gross return of 8 per cent (let us assume that it is), and if the best you can do for that sum under present restriction is to provide a house with all proper sanitary appliances, measuring 12 feet by 10 feet, your position would be greatly improved under the proposed rule; for, under it, you could offer a house measuring 12 feet by 11 feet 6 inches at 16s. less rent, and two ways of dealing with your surplus rental are open to you; either you may remit it, or you may use it to provide still better accommodation for poor people, without going beyond what we have assumed to be the practicable minimum under existing regulations. The

latter course is the one I am disposed to advocate, as it would effect immense improvement in the comfort of our smallest class houses. Starting from the same point as before the difference may be shortly illustrated thus. The tenement with houses 12 feet by 10 feet would cost, with ground at £1 per yard, £1,200, and yield 8 per cent gross, but without coming even so low as 8 per cent—keeping at least one-half to the good—the size of the houses could be increased to 13 feet 6 inches by 11 feet 6 inches—as the cost, including extra ground would be £1,385, and the rental, on the old basis, £120. Moreover, this enlarged tenement would accommodate other 4 families on the same ground; a sufficient margin over the 45 feet area would remain to warrant the intrusion for a time of one "little stranger" in each family; and the ideal of Dr. Russell and my other Glasgow friends—and, notwithstanding some difference, I will say, fellow-labourers—would be attained, as each house would have more than 400 cubic feet of capacity for each adult. I will only add here, and I ask your special attention to the assertion, that, under the rigid 400 cubic rule, these advantages and others which I have now to touch upon are unattainable, so long as authorities cling to the idea that houses must be 10 feet high.

2. *The houses would be larger and more comfortable.* After what I have just said, I need hardly insist upon the fact that the houses would be larger; but what does this mean in a poor household? It means a possibility of order, cleanliness, and general comfort, which hardly exists in our smaller houses, and which the cubic capacity rule cannot possibly secure. Suppose some one intended building our tenement under the old Glasgow rules—that is, allowing 300 cubic feet per adult—he would count upon having four adults in each single apartment; but the rule is changed, and if he still wishes to have a right to put four upon the same small area, all he has to do is to add a little to the height of his building and about 9 inches to the width of each room, and he is within the law—the room being then 12 feet by 10 feet 9 inches and 12 feet 6 inches high. I do not say that this would often be done—but it *might* be done—and in "made-down" houses, originally of a better class, it certainly would be done, and the Local Authority could not prevent it. Now, under the area rule, the floor of a house for four adults would have to measure 15 feet by 12 feet, whether the ceiling were high or low, the house new or old; and, among other incidental advantages of this expansion of area, the division of the house into separate apartments would necessarily, yet quite naturally, follow. Contrast, for a moment, a house measuring 12 feet by 10 feet 9 inches with one 15 feet by 12 feet, both occupied by (say) a man and his wife and four children. In the first the floor area is 129 feet. From this has to be deducted the space occupied by things which

ought to be in every house. These occupy an area of 87 feet, which leaves an area of free space, after gathering all the fragments together, of only 42 feet—little more than the area of a large bedstead. On this any chairs that are wanted must be placed, and here the children must disport themselves, while the father enjoys his pipe and the mother does her household work! What wonder if the one gives up any attempt at tidiness in despair, even if the other makes a practice of clearing out of her way, as soon as his supper is finished, to finish his pipe in the public-house! On the other hand, if you make the same deduction for effects in the other house, there remains a free area of 93 feet—more than double the amount in the first—and you will readily conceive how much this facilitates a comfortable arrangement of "the things." As a test of the superiority of the larger house, I confidently ask you, gentlemen, to say which you would prefer for your own use. I think the advantages of elbow-room in a poor man's house have not been properly appreciated. Our authorities seek powers to secure for people a minimum height of ceiling of 10 feet and a cubic capacity of 400 feet, and yet apparently think it of no consequence whether or not these same people can find room in their houses for the most necessary bits of furniture and leave anything over for the "guidwife" to do "a han's turn" in.

But I must hasten, in conclusion, to refer briefly to the third point of superiority in houses of large area—viz., their healthfulness.

3. *They are more healthy.* You will admit that, if they can only be shown to be equally healthy, they ought to be preferred; but I can say they are more healthy. As I have gone into this part of my subject pretty fully on another occasion, in my paper on "The Advantages of Low Ceilings," published in the *Sanitary Journal*, and also in the *Transactions of the Sanitary Institute of Great Britain*, vol. v, p. 204, and therefore easily referred to, I shall not now go into the matter with any minuteness. The explanation of the chief source of its sanitary superiority is simply this—that inasmuch as the lower strata of air, in a house depending on its chimney for ventilation, are the purest, the more of these strata you can get into the house for the use of the inmates the better. Below the level of the fireplace lintel the air is always comparatively pure; between that point and the door lintel it is less pure; and above that point it becomes rapidly more and more foul as you ascend. Thus, if we say, for the sake of illustration, that the air up to the level of the fireplace lintel (say 3 feet 6 inches from the floor) contains 1 unit of impurity; the air for 3 feet above that 2 parts; the foot above that 3 parts; the next 4 parts, and so on, we shall have, roughly, this result: that, in the house for 4 adults, made in accordance with the existing practice, with 400 cubic feet per inmate, you will have 36 parts

of impurity—that is, 9 parts per individual—whereas, in the house made in accordance with the proposed standard, you would only have 9 parts of impurity altogether, or $2\frac{1}{4}$ to each inmate; or, taking it another way, it will be found that, whereas in the one house the total number of cubic feet of air under the fourth degree of impurity is 967, in the other it is 1,350. The balance of air in each case is practically of no use, but rather a source of danger, so that, in fact, it comes to this, that while in a house made strictly in accordance with the cubic capacity rule each inmate may only have 241 cubic feet of usable air, *and sometimes less*, in a house made in accordance with the proposed rule *no inmate can have less* than 337 cubic feet.

As I have already sufficiently taxed your patience, I shall merely enumerate a few subsidiary advantages peculiar to the large area house—(1) It would be more easily ventilated, for the larger the area the less need the inmates be exposed to draughts; (2) It would be more easily heated, and therefore, the inmates would be less likely to object to ventilation, if taught to value it, as we hope the working classes will soon be; and (3) The access would be easier and safer for children and old people, for no wheeling stairs would be required. These have all a very direct bearing on the sanitary wellbeing and comfort of the inmates; and, taken along with various other advantages I have enumerated, seem to constitute a strong case in favour of the change which I have ventured to propose, the merits of which you are so eminently qualified to appreciate and discuss.

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